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Photographic Guide For Aging Nestling RED-TAILED HAWKS

Marc Q. Moritsch, 1983

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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SNAKE RIVER BIRDS OF PREY PROJECT
BOISE DISTRICT, IDAHO

ACKNOWLEDGMENTS

This paper is a contribution of the Bureau of Land Management's Snake River Birds of Prey Research Project.

Thanks are due to Michael Kochert, Karen Steenhof, Albert Bammann, and John Doremus for their valuable advice. I also appreciate the help of the many volunteers who assisted me with the field work.

Review of the manuscript by Michael Kochert, Karen Steenhof, John Doremus, Dana Yensen, Mike Collopy, Brian Millsap, and Bill Burnham is greatly appreciated.

Terri Thomason patiently typed the many draft manuscripts.

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INTRODUCTION

The ability to age nestlings is important in studies of growth, reproduction and nesting chronology. Estimates of hatching and laying times, important components for determining nest success (Mayfield 1961, 1975), can be derived if a bird's age is known. Accurate aging also is necessary for determining when to band young. Current methods for aging nestling raptors (Scharf and Balfour 1971, Petersen and Thompson 1977, Springer 1979) require that nests be entered and nestlings measured. This can be time consuming, expensive, and may reduce nesting success. An increase in nestling mortality may occur if young are disturbed at certain times of the brood rearing cycle (Fyfe and Olendorff 1976, Steenhof and Kochert 1982). A guide using photography to show morphological changes in nestlings during brood rearing will allow estimates of age to be made without climbing into the nest. This can be useful for several types of research and management work requiring chronological information on the ages of young birds.

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METHODS

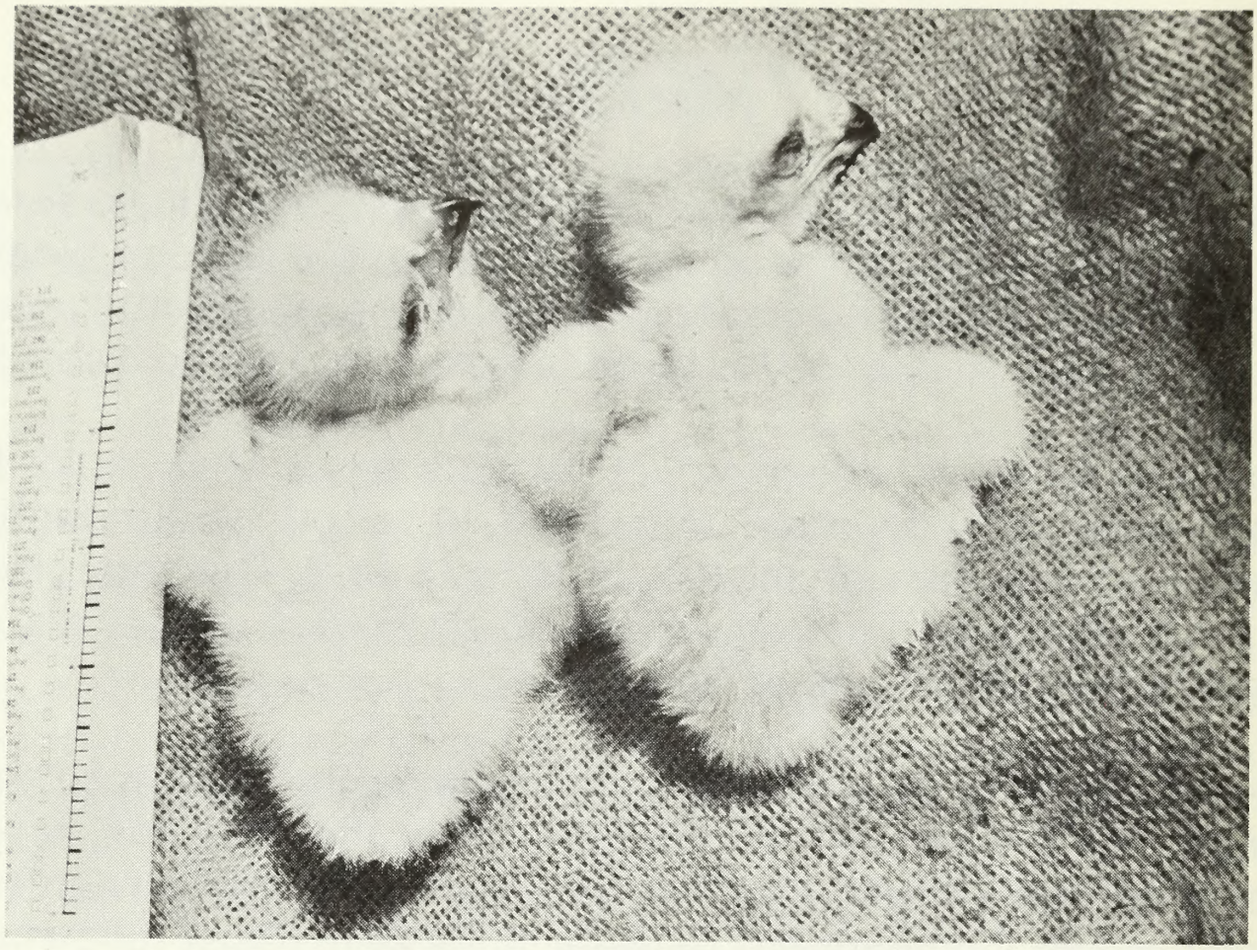
During the 1982 nesting season in southwestern Idaho, I photographed two young from one red-tailed hawk (*Buteo jamaicensis*) nest. Approximate hatch date, to within three days, was determined by observing behavior of the adults and by visually inspecting the nest without entering it during incubation. The nest was visited at four-day intervals from the time the birds were one week of age until fledging. The young were removed from the nest at each visit, photographed, and returned to the nest. The nest was not entered before the chicks were one week old to reduce the chance of early nestling mortality. A plastic color leg band was placed on each bird for identification. Photographs of the head, wing, and dorsal body were taken with black and white and color film to allow identification of important characteristics. When possible, photographs of the body included a reference scale or a 10 cm grid.

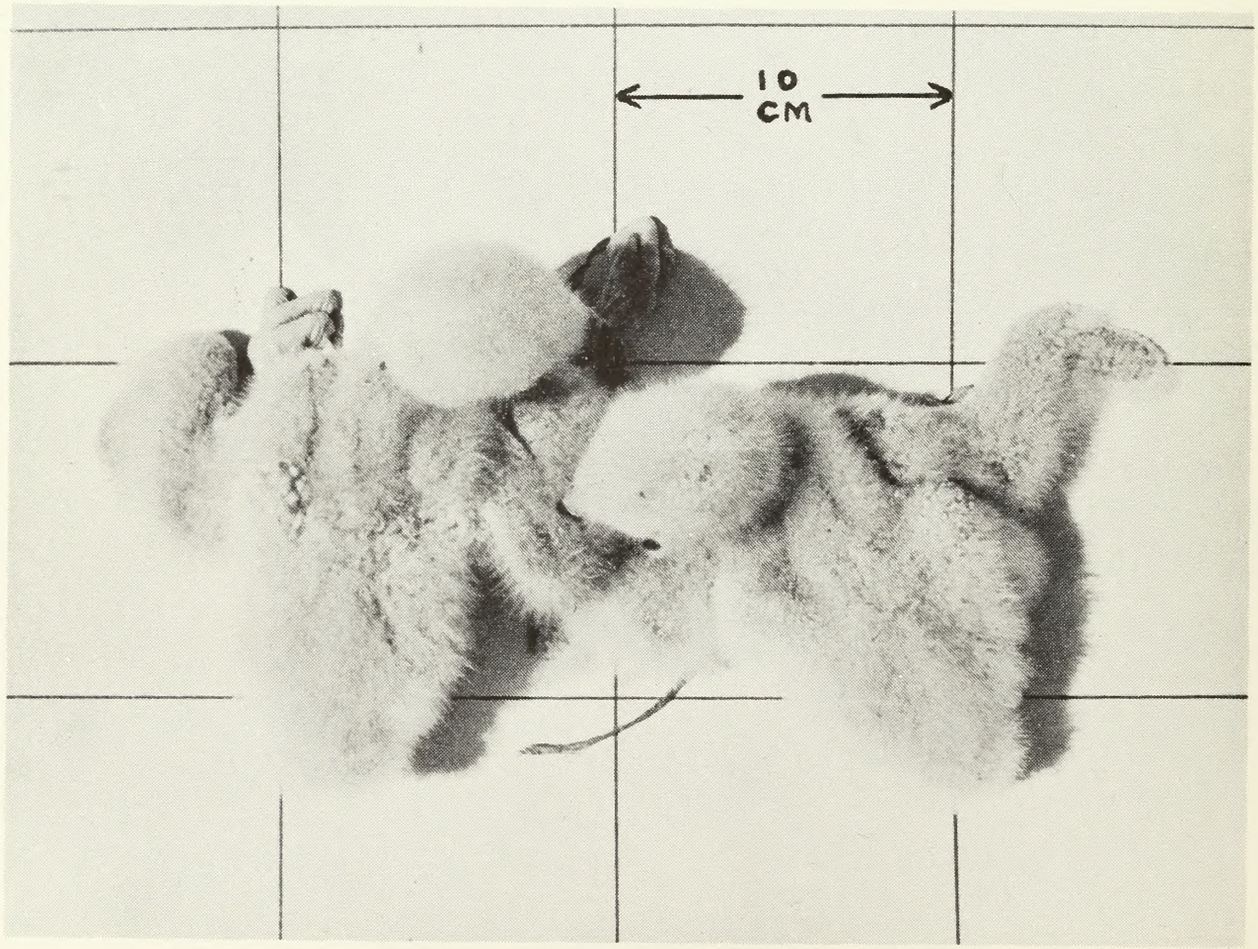
RESULTS

With young red-tailed hawks it was possible to assign a unique series of characteristics at each visit or age class. The number and combinations of useful characteristics increased with age of the young until approximately 29-31 days. At this age the juvenile feathering is almost complete.

The nestlings remained downy until they were about 18 days old. Juvenile feathers were not apparent until the 17-19 day period although they may begin to break through the skin at 13 to 15 days. The body size and condition of the downy plumage of young birds were used to discriminate among the first three age classes.

At approximately 18 days of age the juvenile feathers are apparent on the wings. The progression of development of the wing, tail, scapular and head feathers allowed distinctions to be made between earlier and later age classes. Comparisons between ages were easier following the appearance of the juvenile feathers.

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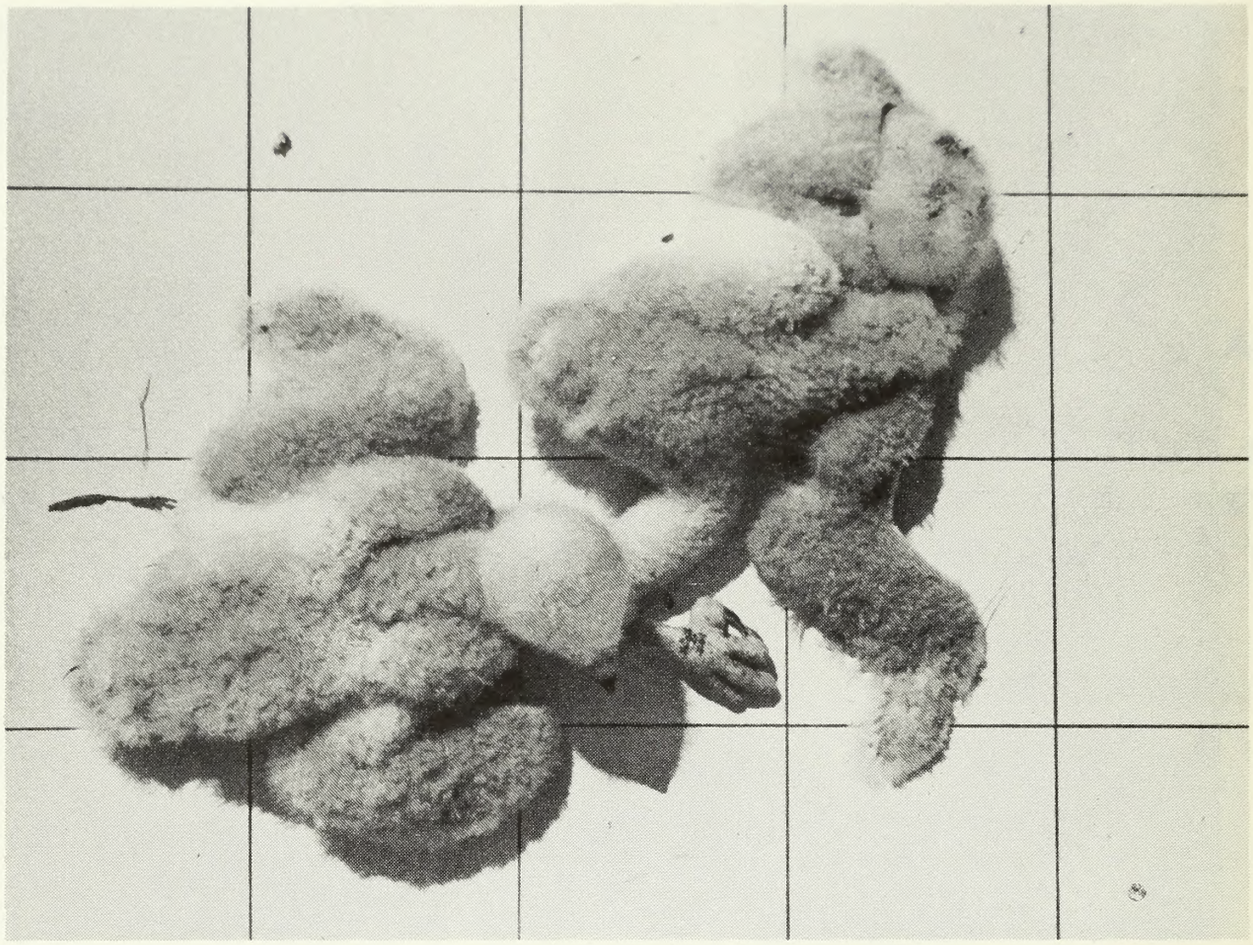
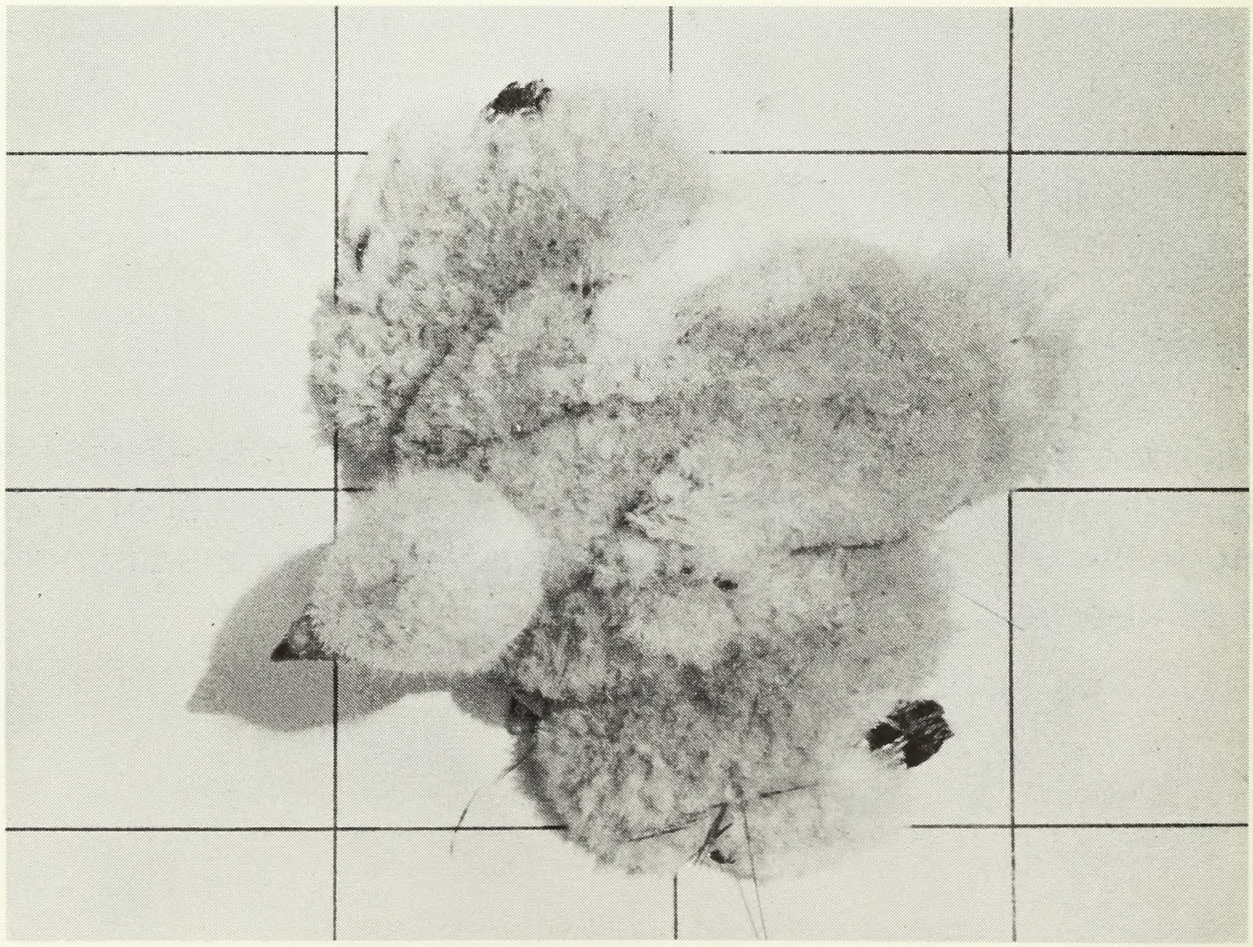
5-7 DAYS

Down is off white or light gray-white. Young are prone and weak, approximately 5 inches (12.7 cm) in length. Bare skin is visible on the femur (femoral apteria).

9-11 DAYS

Down is dark gray, skin visible through the down on the femur. Young are approximately 8 inches (20.3 cm) in length. A light spot of down is present on the occiput. Young are prone most of the time but occasionally sit semi-erect.



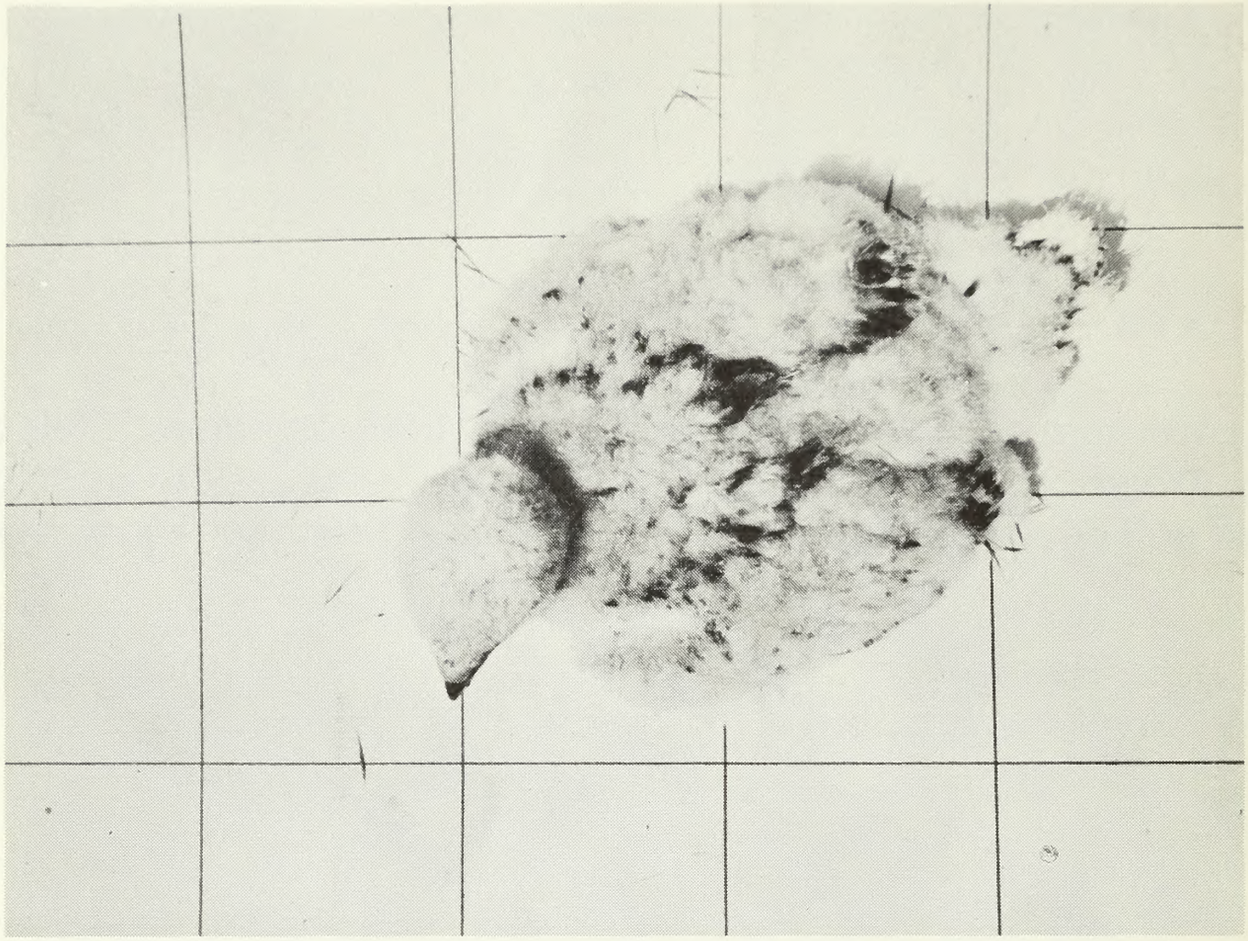


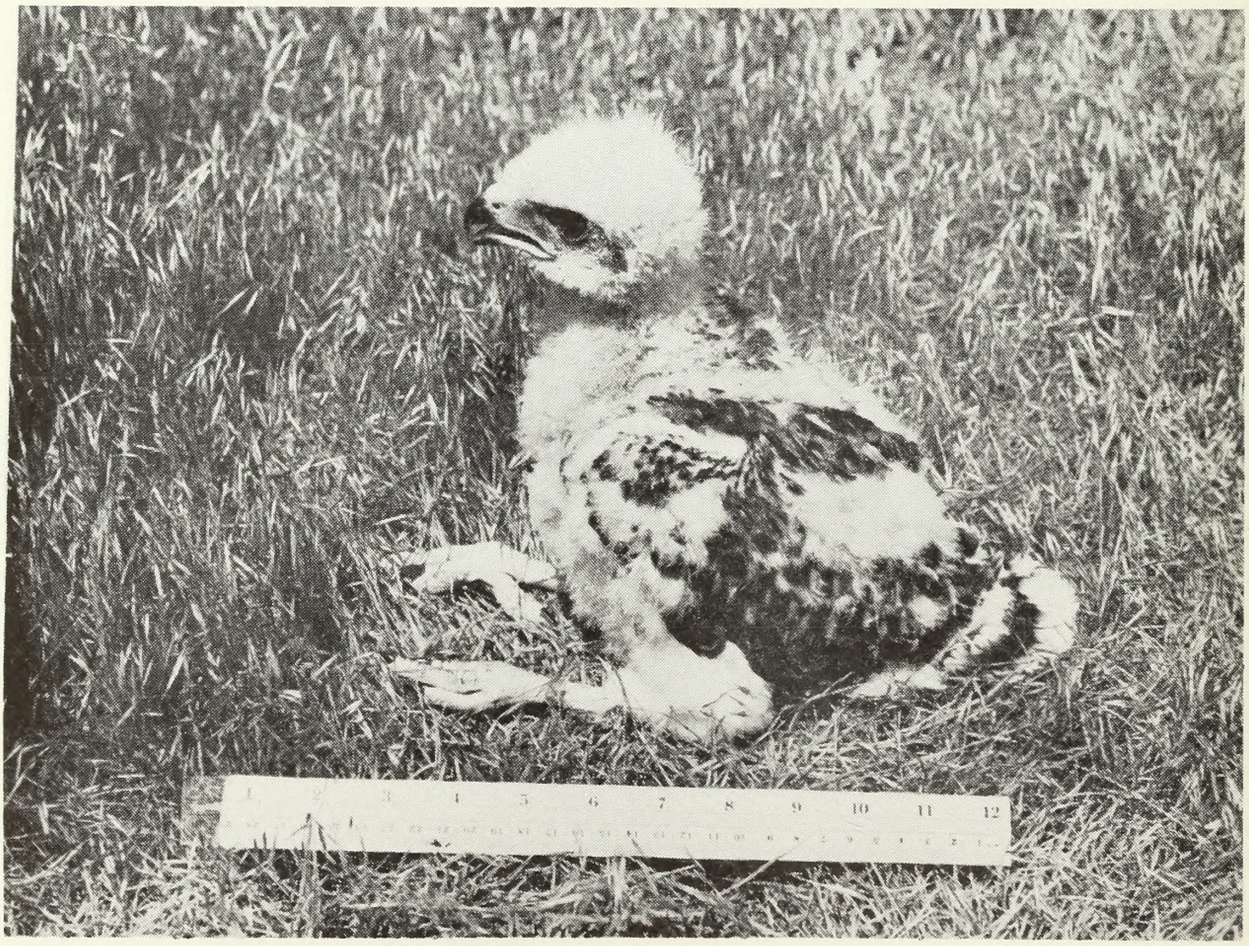
13-15 DAYS

Young are able to sit up and are approximately 9 inches (23.0 cm) in length. Down is dark gray with the exception of a light spot on the occiput and white down on the legs. Primary sheaths are just erupting.

17-19 DAYS

The dark wing tips contrast with the gray body down. Young are approximately 11 inches (28.0 cm) in length and are sitting up. Primary and secondary juvenile feathers showing. Natal down may be visible on the tail.

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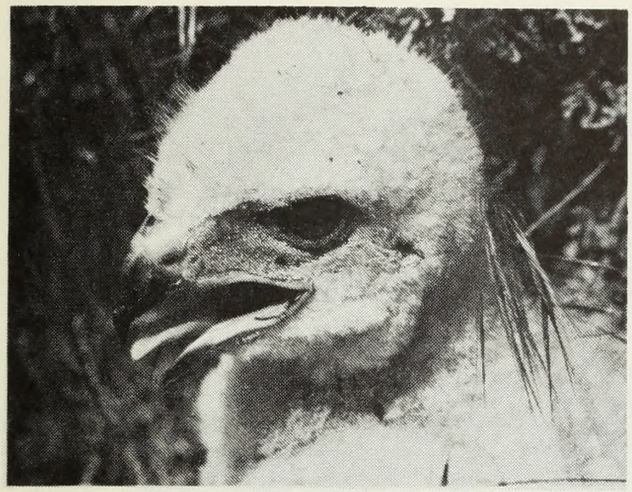
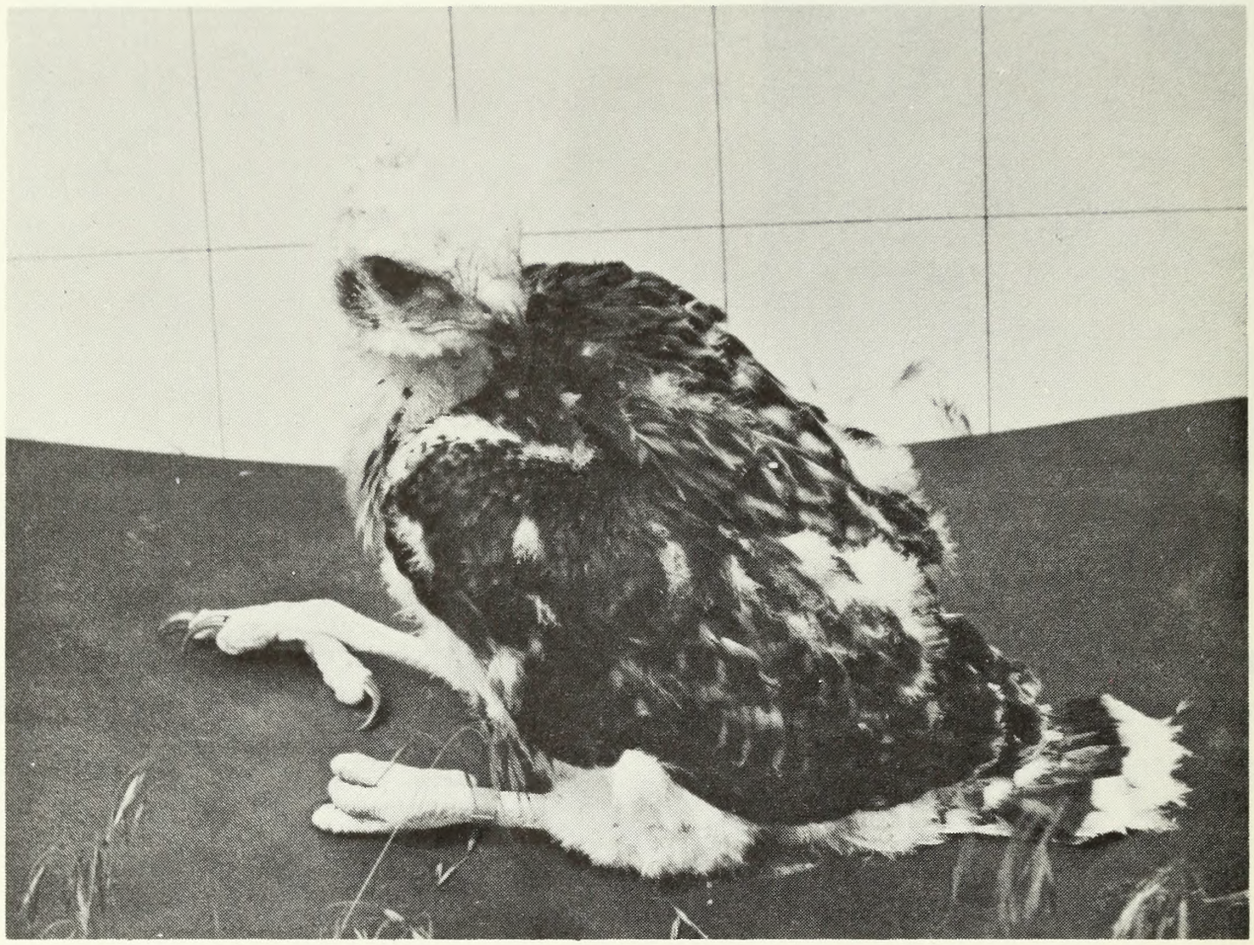


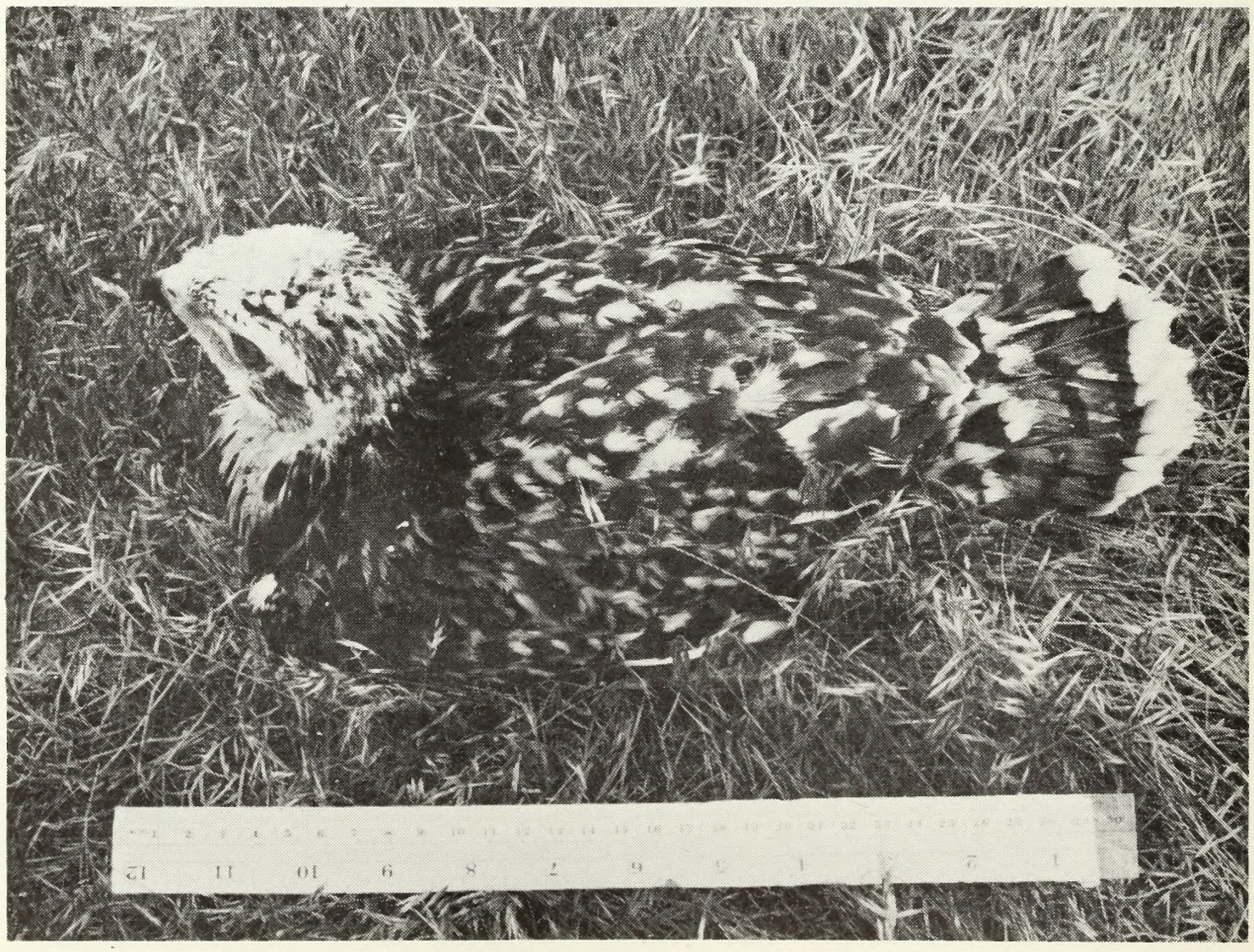
21-23 DAYS

Primaries and scapulars contrast with the body down. Body down is still gray, white spot on occiput still prominent. Juvenile rectrices are visible. Ear openings visible.

25-27 DAYS

The white downy head, upper secondary coverts and upper tail coverts contrast with the dark scapulars, wing and tail feathers. Young are approximately 12-13 inches (30-33 cm) in length. Dark feathers (auricular region) almost completely cover the ear opening and show up as a brown patch.



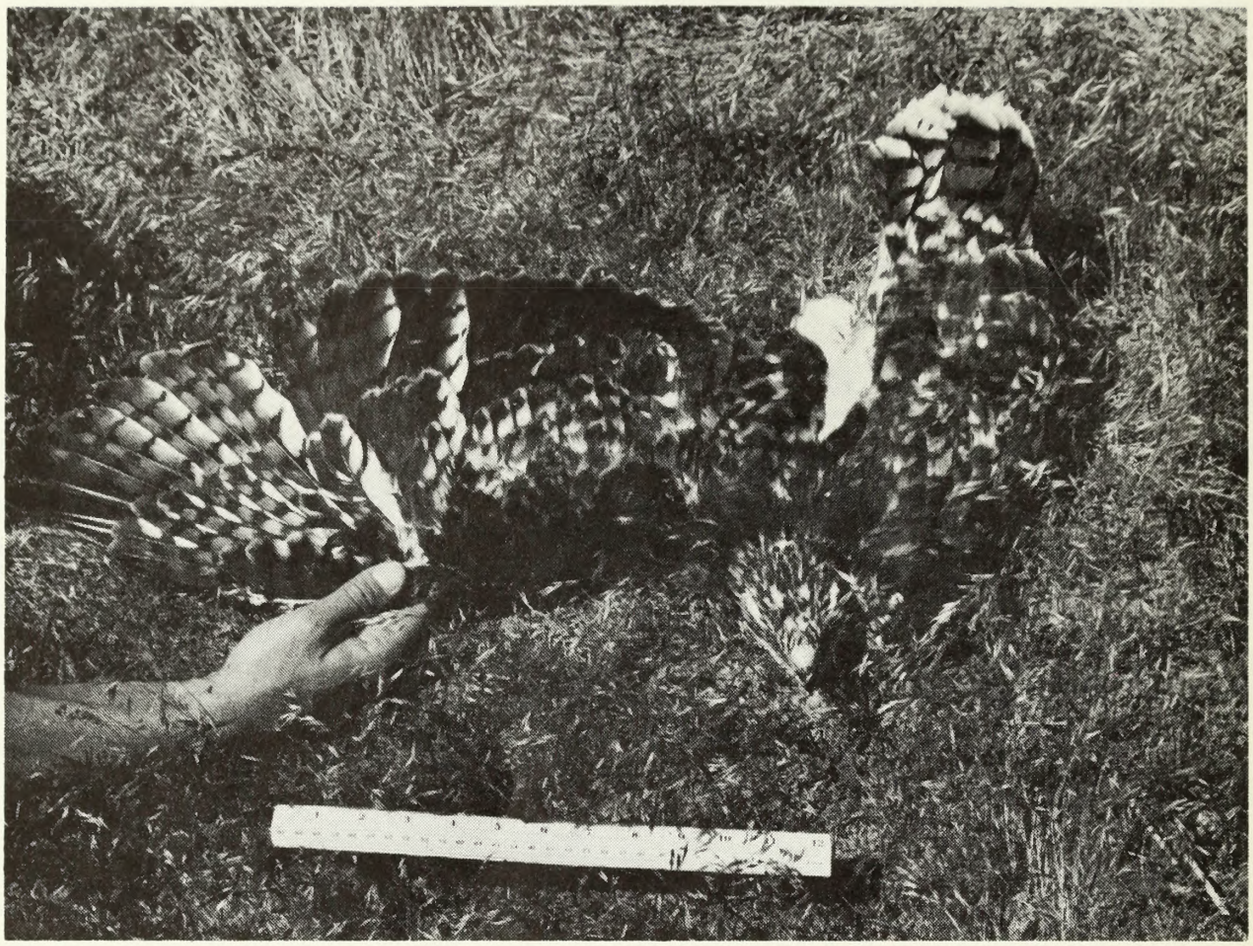


29-31 DAYS

A strong contrast exists between the head (90% downy) and the body. The dorsal wing is 90% feathered. The breast is 50% feathered. Upper tail coverts are well developed. The ear openings are completely feathered over. Occiput feathers are showing through the down. The legs are beginning to feather. Young are approximately 12-14 inches (30-35 cm) in length.

33-35 DAYS

The head is 50% feathered. Dorsal body feathering is 95% complete. The breast is 90% feathered.



37-39 DAYS

The head is 75-90% feathered. The breast is 95% feathered. Dorsal wing is 100% feathered.

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GLOSSARY

Apteria[3] — Bare featherless areas between pterylae or feather tracts.

Auriculars[1] — Feathers covering the ear opening and the area immediately around it.

Coverts[1] — Small feathers that overlie or cover the bases of the large flight feathers of the wings and tail, or that cover an area or structure.

Juvenile Feathers — The sequence of flight feathers which replace the natal down.

Natal Down — First feathers to form on the young birds, replaced by the development of the juvenile feathers.

Occiput[2] — Posterior portion of the crown. Also known as the hind head.

Primaries[1] — The outermost and longest flight feathers on a bird's wing. Members of the Order Falconiformes have ten primaries.

Pterylae — Feather tracts, of which there are eight:

Capital: Feather tract of the head
Humeral: Feather tract of the upper arm
Alar: Primaries, Secondaries
Ventral: Feather tract of the belly from throat to breast
Spinal: Feather tract of the back from head to tail
Femoral: Feather tract of the thigh
Crural: Feather tract of the leg
Caudal: Tail feather tract

Retrices — Tail feathers.

Remiges[2] — Large feathers of the wing, the primaries and secondaries.

Scapulars[1] — A group of feathers on the shoulder, along the side of the back.

Secondaries[1] — Large flight feathers located in a series along the rear edge of the wing, immediately inward from the primaries.

Sheath — Keratin material which encases newly developed juvenile feathers. The sheath disintegrates and allows the feather to unfold.

[1]Udvardy, M.D.F. The Audubon Society Field Guide to North American Birds. New York: Alfred A. Knopf. 1977.

[2]Pettingill, O.S., Jr. Ornithology in Laboratory and Field, 4th ed. Minneapolis: Burgess Publ. Co. 1970.

[3]Welty, J.C. The Life of Birds. Philadelphia: W.B. Saunders Co. 1975.

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